# State of Nebraska
# Agency Comprehensive Information Technology Plan

# 2004

Due: August 16, 2004

Submit completed plan as an e-mail attachment to:
info@cio.state.ne.us

For an electronic version of this form; instructions; and
links to agency IT Plans from 2000 and 2002 go to:
http://www.nitc.state.ne.us/forms/



| Agency | Department of Natural Resources |
|--------|----------------------------------|
| Date | August 2, 2004 |

# 1. Agency Contact Information

Person responsible for Information Technology in the agency:

| | |
|---|---|
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Person to contact for additional information about the agency Comprehensive Information Technology Plan:

| | |
|---|---|
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If **this document** is posted on your agency's Web site, please provide the URL for this document:

http://www.dnr.state.ne.us/databank/dbindex.html

# 2. Agency Mission, Goals and Objectives

Describe the mission of the agency. This is a statement of why the agency exists and its fundamental purpose. Describe the primary business goals and objectives for the next five years (or for that timeframe for which they are formally established).

Explain the primary programs or service areas of the agency and whom they impact. This should include primary beneficiaries, partners, and other organizations that have an interest in the agency's activities. Please identify how the organization interacts with these other agencies, local governments, the public, businesses, and other entities. How does the agency promote a customer focus and collaboration with these groups?

Please include the URL, if a fuller explanation of this topic is available on the agency's web site.

**Nebraska Department of Natural Resources Mission:**
The Nebraska Department of Natural Resources (NDNR) is dedicated to the sustainable use and proper management of the state's natural resources.

NDNR is aware of the challenges of protecting and conserving Nebraska's soil and water resources and of the complexity of each resource issue and their alternatives. Each alternative resolution to any given issue contains competing political, social and economic impacts. Finding the balance between competing issues is a key to Nebraska's resource future, and a challenge to those responsible for the management of those resources.

The Department of Natural Resources is committed to providing Nebraska's citizens and their leaders with sound resources information so that the challenges of today and tomorrow will be

met and our resources decisions will be wise, farsighted and benefit all Nebraskans both today and in the future.

## Agency Primary Programs and Service Areas:

### Water Rights Administration Division

The mission of the Water Rights Administration Division includes: administering surface water permits; processing all surface water applications, groundwater permits, and groundwater registrations; and adjudicating water appropriations in an efficient manner as described by law, respecting all customers. The Division will adjudicate water appropriations in a fair and equitable manner according to the law.

Goals and Objectives:
- Responsible for maintaining the State's ground water well registration program.
- Administer the State-required ground water permit program.
- Responsible for administering and adjudicating the State's surface water appropriation program.

### Planning and Assistance Division

The mission of the Natural Resources Planning and Assistance Division is to promote land and water conservation and development through providing information, state level planning, and assisting local units of government.

Goals and Objectives:
- Responsible for guidance and general supervision of the Nebraska State Water Planning and Review Process.
- Plan, develop and promote the implementation of a comprehensive program of resource development, conservation and utilization of soil and water resources.
- Provide information on water policy issues and water problems as well as alternative means of addressing them.
- Develop and maintain the data, information and analysis capabilities necessary to provide a support base for water planning and management activities by NDNR, other state agencies, and interested parties.
- Develop and manage SSURGO and Nebraska Hydrography databases in accordance with National standards.
- Provide the State with the capability to plan and design water projects, including interagency reviews of water projects and programs.
- Coordinate the Agency's stream gaging efforts.
- Coordinate climate assessment and response efforts.
- Assist with administration and implementation of interstate compacts and decrees.
- Assist with implementation of the Groundwater Management & Protection Act.

### Floodplain Management, Dam Safety and Survey Division

The mission of the Floodplain Management, Dam Safety, and Survey Division is to provide high quality products and services and perform regulatory duties in the areas of floodplain management, flood mitigation planning, dam safety, photogrammetry, and survey.

Goals and Objectives:
- Responsible for reviewing plans and specifications for all new dams.
- Conduct safety inspections of existing dams including tracking construction activities and performing periodic inspections during construction.
- Review emergency action plans including preparing safety inspection schedules, maintaining a database of technical data on dams for inclusion into the National Inventory of Dams, and evaluating dams with respect to departmental jurisdiction, hazard classification and hydraulic capacity.

- Provide technical assistance on floodplain management to communities, State agencies, federal agencies, and the public including identifying and delineating floodplains and floodways; providing State coordination for the National Flood Insurance Program, and providing technical assistance and funding to communities for development of local flood hazard mitigation plans.
- Support mapping and survey activities of the Agency, Natural Resources Districts, the Natural Resources Conservation Service, the Corps of Engineers, and other partners by providing a variety of services.

## Administrative Services
The mission of the Administrative Services Division is to administer agency local assistance funds and to provide administrative support to all divisions within the Agency.

Goals and Objectives:
- Responsible for personnel, procurement, payroll, facilities management and other administrative services for the Agency.
- Works with the sixteen-member Natural Resources Commission in the administration of the following natural resources related funds:
  - Soil and Water Conservation Fund (provides Nebraska landowners cost-share assistance for installing approved conservation practices)
  - Resources Development Fund (provides State funding assistance for the construction of larger projects that enhance Nebraska's natural resources)
  - Small Watersheds Flood Control Fund (financially aids local sponsors with acquisition of necessary land rights for flood reduction projects)
  - Water Well Decommissioning Fund (provides State dollars to decommission or plug illegal or abandoned water wells)
  - Natural Resources Water Quality Fund (provides tax dollars to natural resources districts for water quality projects)

## Administrative Support
The mission of the Administrative Support Division is to provide clerical and secretarial support for the entire Agency and specific clerical support for the Water Rights Administration Division. Roles include preparing and managing correspondence and related documents, event scheduling and notification, and inbound correspondence control and processing.

Goals and Objectives:
- Prepare formal correspondence and documents for Agency management and staff.
- Manage Agency correspondence, document and report files.
- Responsible for sorting, processing, and distributing inbound mail.  This includes review and organization of water rights-related documentation, and initial recording of remittances.

## Field Offices
The mission of the Field Offices is to effectively and efficiently administer and enforce the water laws of Nebraska and to accurately collect and compile surface water supply and use data.

Goals and Objectives:
- Responsible for the administration of surface water rights according to priority, and preference for in-state uses.
- Monitor, enforce and assure compliance with interstate compacts and decrees.
- Operate stream gaging stations and compute stream flow records.
- Investigate and record surface water use.
- Perform safety inspection on dams.

## Information Technology Division
The mission of the Information Technology Division is to support the Agency's internal IT

infrastructure and related business data and application needs, and to provide comprehensive, integrated databases of Nebraska natural resources information with internet access for government agencies, the general public, and other stakeholders.

Goals and Objectives:
- Responsible for managing and supporting the Agency's internal IT infrastructure including the hardware and software for internal applications and data, data network, web interface, end user computing and related equipment.
- Develop, maintain, manage and safeguard the application and data assets that support Agency business operations and obligations in an efficient and cost-effective manner.
- Develop and/or manage relational and GIS databases in standard reference formats, including digital orthophoto quadrangles, digital elevation models, soil surveys, national hydrographic databases, and public land surveys relating to Nebraska.
- Empower decision-makers and users of natural resources information with standardized display and processing tools to facilitate planning and management of Nebraska's land and water resources.
- Provide online public access to integrated information and services using an e-government portal and innovative technologies in a responsive, efficient, and cost-effective manner.
- Participate in state-wide geospatial data center development initiatives, including providing GIS support services to external parties and developing, operating and promoting the enterprise GIS metadata clearinghouse and Nebraska Geospatial Data Center.
- Provide support to The National Map services pertaining to the State of Nebraska.
- Serve as a liaison and coordinate NDNR activities with NITC, SGC, CIO, NIDCAC, GIS Steering Committee, and The National Map, as well as other state, federal and local data collecting agencies.

## Primary Beneficiaries, Partners and Stakeholders
NDNR works closely with and, in some cases, has formal agreements with:  state agencies, boards and commissions; local communities and counties; federal agencies; NRDs; and irrigators, farmers and ranchers.  These include:

- U.S. Geological Survey - Groundwater Levels Cooperative Agreement, Streambed Degradation Cooperative Agreement.
- Natural Resources Conservation Service - Soils Digitization Interagency Personnel Agreement (NRCS liaison stationed at NDNR).
- UNL Conservation and Survey Division - Soils Digitization Interagency Personnel Agreement, and Soil Survey pass-through monies.
- U.S. Army Corps of Engineers - Agreement on Lower Platte River and Tributaries Feasibility Study.
- U.S. Bureau of Reclamation - Cooperative Agreement to conduct study on Nitrate levels in Nebraska's Small Community and Rural Domestic Water Supplies.
- Natural Resources Districts – Joint planning for management of interrelated ground water and surface water.  Cooperative Agreement with Lower Platte North, Lower Platte South and Papio-Missouri River NRDs on Lower Platte River and Tributaries Feasibility Study.  Provide Assistance to Upper Republican NRD on Groundwater Management Area Implementation.
- Hydrology Sponsors - Cooperative Agreement to conduct Platte River Cooperative Hydrology Study.
- Nebraska Dept. of Environmental Quality - Serve on Waste Reduction and Recycling Grants Review Board.
- Federal Emergency Management Agency - Flood Mitigation Assistance Program with funding from FEMA.
- NE Emergency Management Agency - Disaster assistance funds used to further floodplain management goals.
- NE Dept. of Economic Development - Provide Community Development Block Grant Funds for administration of Flood Mitigation Assistance Program.

- Nebraska Environmental Trust - NDNR serves on committees.
- Climate Assessment and Response Committee - NDNR membership.
- Western Governor's Association - Serve on GIS Council for Western Governor's Association.

**Agency Web Site**
A comprehensive explanation of agency's programs, Data Bank on-line services, and other service functions are available at agency's web site.

http://www.dnr.state.ne.us

# 3. Current Use of Information Technology

## 3.A. Existing IT Environment

### 3.A.1. Applications

**Off-the-Shelf Applications**
Provide the estimated number of licenses for each of the following applications:

| Off-the-Shelf Applications | | Number of Licenses (Best estimate, exact number not necessary) | Versions in Use (Optional) |
|---|---|---|---|
| **Productivity Suites** | | | |
| | Microsoft Office Suite | 100 | 2000, XP, 97 |
| | Corel WordPerfect Office | 5 | 2000 |
| | Other (Specify) | | |
| **Internet Browser** | | | |
| | Microsoft Internet Explorer | 100 | - - |
| | Netscape / Mozilla | 5 | - - |
| | Other (Specify) | | |
| **Anti-Virus** | | | |
| | Symantec/Norton | | |
| | McAfee | | |
| | Other: Computer Associates e-Trust | 100 | - - |

| | | | |
|---|---|---|---|
| **E-mail and Calendaring** | | | |
| | Microsoft Exchange | | |
| | Lotus Notes | | |
| | Other: POP3 / MS Outlook, Eudora | 100 | - - |
| | OfficeVision | | |
| | Open Text Corp - OnTime Calendaring | 75 | |
| | | | |
| **Database Management (DBMS)** | | | |
| IBM DB2 or UDB | | | |
| | Client Licenses | | |
| | Server Licenses | | |
| | Mainframe Licenses | | |
| Oracle | | | |
| | Client Licenses | | |
| | Server Licenses | | |
| | Mainframe Licenses | | |
| Microsoft SQL Server | | | |
| | Client Licenses | | |
| | Server Licenses | 3 | 2000 |
| AS/400 | | | |
| | Licenses | | |
| Other (Specify) | | | |
| | Client Licenses | | |
| | Server Licenses | | |

### List any other significant off-the-shelf applications utilized by the agency:

| Title | Vendor | Users |
|---|---|---|
| ARCServe - Server | Computer Associates | 2 |
| ARCServe – SQL Agent | Computer Associates | 2 |
| ARCServe – Open File Agent | Computer Associates | 2 |
| ARCServe – Client | Computer Associates | 2 |
| Firewall | - - | 2 |
| ITExtra! Personal Client | Attachmate | 5 |
| Autocad | Autodesk, Inc. | 2 |
| AutoMap | Autodesk, Inc. | 1 |
| Visual Studio Pro | Microsoft | 5 |
| Access Development Suite | FMS | 2 |
| ArcView | ESRI | 37 |
| Arc/Info | ESRI | 14 |
| ArcGrid / Spatial Analyst | ESRI | 6 |
| TIN / 3D Analyst | ESRI | 4 |
| 3D Analyst | ESRI | 3 |

| | | |
|---|---|---|
| ArcIMS | ESRI | 1 |
| ArcSDE | ESRI | 1 |
| ArcReader | ESRI | 1 |
| ArcPress | ESRI | 2 |
| Text Pad | Helios | 10 |
| WMS | Brigham Young University | 1 |
| Terra Modeler | Unknown | 5 |
| River | BOSS International | 1 |
| CAD | Caere Corporation | 1 |
| PCAnywhere | Oreilly & Associates | 1 |
| Website Professional | SCO Software | 20 |
| XVision | Bentley Systems | 20 |
| MicrostationISM Suite | ISM | 1 |
| SKI-PRO | Lieca | 3 |
| Network Observer | Network Instruments | 1 |
| WMS | Scientific Software Group | 2 |

### Other Applications

List other significant applications, including custom applications developed for the agency. Include information pertaining to (a) the general purpose of the application; (b) the platform on which it is running; and (c) if a custom applications, development tools used:

| Custom Application | Platform | Development Tool |
|---|---|---|
| Registered Wells Management System | Windows | MS Access |
| Surface Water Rights Management System | Windows | MS Access, SQL |
| Surface Water Rights Regulatory Notice Web System | Web | .net |
| Interactive GIS Data Request System | Windows | ArcObjects |
| CGI WIN Interactive Web Applications | Windows | .asp, .net |
| Nebraska Map Interactive | Windows | ArcIMS |
| Nebraska Geospatial Data Center Metadata Clearinghouse | Windows | ArcIMS |
| The National Map Viewer | Windows | ArcIMS |
| XDOPS (Interactive Digital Orthophoto Projection System ) | Solaris | C, Fortran, others |
| Legal2UTM (Projects legal description to NAD 27 zone 14 UTM coordinates) | Windows | .net |
| Web-accessible Scanned Document Management System | Windows | .net |
| DLG2ARC (reformats DLG data into ArcInfo Point/Line formats) | Solaris | ArcAML |
| | | |
| GeoParm (Geohydrologic parameters for geologic test hole logs lithology) | Windows | Visual Basic |
| Baseflow (Reformat USGS streamflow into MS Excel for baseflow computations) | Windows | Visual Basic |
| Water Quality Clearinghouse web application | Windows | ASP |
| NE RAIN web application | Windows | |
| Platte River Natural Flow and Storage Water Accounting Program | | |

**Databases**

List major databases maintained by the agency and the general purpose of each:

**Surface Water Rights Database:**  Detailed current and historical information about all legal rights for use of surface water including diversion points, appropriations, ownership, transfers, notices, adjudications, etc., is maintained in geospatial and tabular formats. This database is continuously referenced and updated by the Water Rights Division and Field Offices in performing business functions related to surface water right transfers, grants, adjudications, notices, maintaining owner and tenant information, etc.  Selected portions of the database are also available via the internet for access by external parties.

**Well Registration Documents Database (scanned legal documents):**  Well registration applications, plans, status changes, correspondence and other documents are scanned and inserted into this database on a daily basis. The database is structured, indexed and made available via the internet to enable Water Rights Division users as well as external stakeholders to access and create copies of historical information more quickly and efficiently than with paper documents or microfilm. In addition, problems with sharing paper files are significantly reduced.

**Ground Water (Registered Wells):**  Detailed current and historical information about registered wells including location, geology, construction, point of water use, land ownership, well ownership, etc., is maintained in geospatial and tabular formats. It is routinely referenced and updated by the Water Rights Division in performing business functions related to determining well spacing requirements, ownership changes, abandonments, replacements, etc.  Significant portions of the database are available via the internet for access by external parties.

**Elevation (Earth's Surface) Database:**  During 1999 through 2002, the Agency, in collaboration with the U.S. Geological Survey, created statewide 10-meter interval, Level II, 7.5 minute Digital Elevation Models mapped to a 1:24,000 scale.  During 1995-1998, the Agency similarly developed statewide 30-Meter interval, Level II, 7.5-minute DEMs.  Both the 10-Meter and the 30-Meter interval DEM databases are now available on-line and are dynamically retrievable over the Internet through the Data Bank.  The Agency uses these for flood prone area mapping, terrain modeling, and other purposes including development of NHDs and DOQs.

**Ortho-imagery (Aerial Photography) Database:**  The Agency, in collaboration with the U. S. Geological Survey, produced Digital Orthophoto Quadrangles (DOQs) for the State of Nebraska, based on 1993 NAPP imagery. Revised DOQs based on 1999 NAPP imagery were completed in mid-2004. The Agency uses these for digitization of soil surveys, base mapping, and watershed planning purposes. Other applications include precision farming, field mapping, land use inventory, and project studies. This is one of the framework databases that provides basic data infrastructure and a valuable visual backdrop for a wide variety of GIS applications and geo-spatial data users. Compressed DOQs are available on-line and are disseminated over the internet through the Data Bank.

**Digitized Soil Surveys Database:**  The Agency in cooperation with the U.S. Natural Resources Conservation Service and the Conservation and Survey Division - UNL, digitized county soil surveys in accordance with national SSURGO standards. Soil surveys of all 93 Nebraska counties were completed in July 2004. The SSURGO database is widely used for natural resources planning and management activities such as farm and ranch planning, range and timber management, and watershed resources planning and management. The database is available on-line and data can be dynamically retrieved over the internet.

**Tagged Vector Coverage (TVC):**  The TVC database contains vectorized contour data derived from 7½-minute topographic (hypsography) map series. TVCs are used to create very precise custom DEMs, floodplain delineations, and to update watershed boundaries. Integrated with the National Hydrographic Database, TVCs support detailed hydrologic modeling for Nebraska watersheds. The TVC database is available on-line and data can be dynamically retrieved over the internet.

**Delineation of Flood Prone Areas:**  The Agency has developed automated procedures to

accelerate delineation of flood-prone areas across the state utilizing GIS technology. This process includes use of DEMs and DOQs for floodplain mapping and delineations, and watershed modeling software to determine 100-year water surface profiles and other channel routing components. Planning to make resulting maps and related data accessible via the internet has been initiated to improve support of various local floodplain management programs and the National Flood Insurance program.

**Collection and Compilation of Stream Gaging Data:**  The Agency maintains and operates numerous gauges to measure and track flow and levels of streams, reservoirs, and canals, and makes spot measurements or observations of stage at sites operated by other entities including the U.S. Geological Survey. Observation data is used by the agency for administration of surface water rights, interstate compacts and decrees, flood forecasting, determining long-term quantity of water supply, determination of annual peak flow, and general hydrologic evaluation of various drainage basin characteristics. Data is available to the public via the Internet.

**Geodetic Controls Database:**  This database provides a common reference system for establishing the coordinate positions of all geographic data. The information is also used for production of DOQs.

**Governmental Units Boundary Database:**  This database includes geographic areas and boundaries of governmental units recognized in the State, including counties, NRDs, river basins, hydrologic units, major streams, cities, legislative districts, fire districts, and township boundaries. This data is available on-line and dynamically retrievable over the internet through the Data Bank.

**National Hydrography Database (NHD):**  The Agency, in cooperation with other State agencies, is developing high resolution digitized delineations of surface water features including lakes, ponds, streams, canals, and shorelines. Each feature has name and feature identification code attributes. This database is used for analysis and modeling of water supply, pollution, flood hazard, wildlife, development and land suitability.  Completed NHD coverages are made accessible and can be dynamically retrieved via internet.

**GIS Metadata Clearinghouse:**  In cooperation with the GIS Steering Committee and with the aid of grant monies provided by the Nebraska State Records Board, the Agency is developing a statewide metadata clearinghouse for GIS-related information. The clearinghouse will serve as an enterprise repository of detailed information about geospatial data related to the geographic area of Nebraska, and provide electronic links to the data available at State agencies and other entities.  This will allow Nebraska citizens, public agencies, and private entities to conduct online searches for a wide variety of geospatial data developed and/or maintained by a variety of State, local, and federal agencies and private entities.

### Data Exchange
List the significant electronic data exchanges your agency has with other entities:

The following electronic databases, managed by the Natural Resources Data Bank, are continually exchanged with associated government agencies including The National Map.  The processed data is published over the web in the form of spatial (GIS) and tabular databases for dissemination to general public. The following databases are available on-line and dynamically retrievable over the internet through the Data Bank:

| Electronic Data Bases Exchanged | General Purpose | Collecting Agency |
| --- | --- | --- |
| Registered Wells<br>Surface Water Rights<br>Stream Gaging and  Canal Diversions<br>Reservoir Storage<br>Dams Inventory<br>Digital Orthophoto Quadrangles (1993 & 1999)<br>Compressed DOQs Quadrangles (1993 & 1999)<br>National Hydrography Database<br>Digital Elevation Models (10 & 30 meter)<br>Elevation Contours (TVC)<br>Government Units Boundary<br>Databases<br>COHYST databases | Ground and surface water management and natural resources planning | NE Department of Natural Resources |
| Agricultural Crops Harvested/<br>Potential Irrigated Acres (Statistics) | Natural resources planning | NE Department of Agriculture |
| Center Pivots | Natural resources planning | CSD - UNL |
| Daily Rainfall<br>Snowfall<br>Ambient Temperature<br>Evaporation<br>Hourly Rainfall<br>Extended Weather Data<br>Solar Radiation | Climatological and natural resources planning | U. S. National Climatic Center |
| Stream Flow<br>Peakflow<br>Groundwater Levels | Watershed planning | U. S. Geological Survey |
| Surface Water Quality<br>Groundwater Quality | Environmental assess-ment and planning | U. S. Environmental Protection Agency |
| National Wetlands Inventory<br>Rainwater Basin Wetlands (COE) | Environmental assess-ment and planning | U. S. Fish & Wildlife |
| Decennial Census (1980, 1990, 2000)<br>Population Estimates<br>TIGER Line Files | Natural resources and human resources planning | U. S. Bureau of the Census |
| Soil Mapping Units (Interpretative Records)<br>SSURGO Soils<br>Soil Surveys (2-Acre Cells)<br>Land Use (8-Acre Cells)<br>Crop Management, Soil Erosion (C-Factor)<br>Crop Practice, Soil Erosion (P-Factor) | Soil resources conservation and planning | U. S. Natural Resources Conservation Service |

### 3.A.3. Hardware, Operating Systems, and Networks

#### Hardware
Provide a general description of the elements of the computing environment (mainframe, midrange, PC workstations, etc.).

The majority of NDNR's 90 staff work in its main office.  The remaining staff are spread among field offices in Lincoln, Bridgeport, Cambridge, Norfolk, and Ord.  Both the main office and the Lincoln Field Office are located in the State Office Building.

The computing environment within the State Office Building consists of desktop PCs, a few laptop PCs, printers, plotters, scanners, and other peripheral devices attached via local area network to the data center which is comprised of multiple servers and NAS devices, and other related data storage and communications equipment.  Most of the Agency's hardware is of Dell manufacture, with a few older units from Gateway, Sun, and others.  Some staff (Administrative Services and Water Rights) are also connected to the State of Nebraska mainframe for access to a surface water database (slated for migration to NDNR servers) and the NIS applications.  External access via the internet is managed through the firewall server to the web server.  The web server hosts both public and internal data.  External access is restricted to selected appropriate datasets - typically partial or complete copies of production datasets.

Computing environments in field offices consist of a server with connected PCs, printers and other peripheral devices.

### Desktop Operating System(s)

| Operating System | Approximate users/licenses |
|---|---|
| Windows 95, 98, or ME | 15 |
| Windows NT | |
| Windows 2000 | 65 |
| Windows XP | 20 |
| OS/2 | |
| Linux | |
| Mac OS | |
| Other (Specify:   ) | |

### Networks - LANs and WANs
Provide a general description of the agency's network environment:

The Department of Natural Resources uses Windows NT, Windows 2000 and Windows2003 systems in its Client/Server environment to manage the Local Area Network, GIS, FTP, and Web hosting/server applications; and UNIX systems (SUN Solaris and LINUX Operating Systems) for the firewall and to manage its Ethernet (TCP/IP) Wide Area Network including DNS, Email, and some GIS applications.  Field offices connect to the main office via the internet using DSL connections from local service suppliers.  Options such as Virtual Private Network (VPN) are being considered for field offices to enable more efficient data exchange and support secure access to internal datasets.

### Networks – Server Operating System
Indicate the network operating system(s) utilized:

| Network Server Operating System | Number of server licenses |
|---|---|
| Novell Netware | |
| Windows NT | 1 |
| Windows 2000 | 5 |
| Windows 2003 | 2 |
| Unix | 2 |
| Linux | 2 |
| AS/400 | |
| OS/2 LAN Server | |
| Other (Specify:   ) | |

### 3.A.4. Staffing

**General Information**
Identify, in general terms, the agency personnel resources currently devoted to supporting the items listed in this section (3.A). This should include both personnel whose job titles and description are clearly related to technology, other personnel whose responsibilities relate significantly to technology support regardless of job title, and contract staffing provided to the agency. Please provide an organizational chart, if available, or describe the organizational structure for managing IT related staff.

The Agency's official IT staff consists of eight full time positions in the Information Technology Division. FTE staffing by general role is noted below.

- 1 FTE - Division supervision, administration and planning
- 1 FTE - Data Bank management and planning
- 1 FTE - Data Bank database and web access development & support
- 3 FTE - Applications development and support
- 2 FTE - IT operations and infrastructure support

A few staff in divisions other than IT spend a significant amount of time in technical support and/or development activities. Chief among these are a .5 FTE in the Bridgeport Field Office responsible for technical development & support, and .25 FTE in the Planning & Administration Division who works on web development & support

All divisions within the Agency are closely involved in IT planning and development processes. These divisions also include staff with IT capabilities, but the primary duties of these staff members are in areas other than IT. Their use of IT skills has typically been related to configuring or installing end-user GIS and mapping tools, creating Access databases for internal division use, modeling and related database development, and creating or capturing data.

One contractor is presently engaged to assist in supporting special needs of projects and initiatives such as the Republican River settlement management. This contractor also serves to augment the internal IT staff in developing and maintaining specific applications and GIS tools.

**NIS Tracking**
The Nebraska Information System (NIS) includes the capability of tracking personnel service expenditures for staff who are devoted to information technology activities. Have you designated any business units in NIS that are focused on providing information technology services by using Category Code 7 (UDC 00/07)? Or have you used the Time Card Category Code 4 (UDC 06/04) for employees who may need to have their time recorded as I/T related expense?

The IT Division of NDNR includes all Agency staff devoted full-time to information technology activities. These employees are set up as Category Code 06/07 in the Employee Master, and the IT Division is identified as a separate business unit in NIS for budgeting and tracking IT personnel service expenditures.

### 3.A.5. Other

Please list any other issues relating to your current IT environment:

NDNR IT Division staff are engaged in various IT projects in support of Agency business processes and initiatives, and for the development, processing and dissemination of Nebraska's natural resources data.  Current projects are listed below.

| Current IT Projects | STATUS |
|---|---|
| Surface Water Data Base Modernization | In progress |
| Integrated Water Information System Design and Planning | In progress |
| On-line Registration of Water Wells Improvements | In progress |
| File Backup and Restore Process Improvements | In progress |
| Rainfall Assessment & Info Network Development Support (NE RAIN) | In progress |
| GIS Metadata Clearinghouse | In progress |
| The National Map Services | In progress |
| E-government Transactions & Web-based Applications | Continuing |
| Interactive Mapping over the Internet | Continuing |
| Website Updating/Maintenance | Continuing |
| Census Population Data | Continuing |
| Migrate GIS data into ArcSDE using SQLserver DBMS | In progress |
| Annual Updates of Databases | Continuing |
| Groundwater Levels Website | Continuing |
| Tagged Vector Cleanup | Continuing |
| Flood-prone Area Mapping | Continuing |

### 3.B. Value

Describe and document the tangible and intangible benefits of the agency's investment in information technology.

The IT Division works closely with Agency users and external stakeholders to develop and enhance the IT infrastructure, systems, and data.  The aim of these efforts is to effectively support business processes and enable the Agency to meet its obligation of sharing information resources both internally and externally.  Ongoing efforts to further automate and integrate business processes and datasets are helping to reduce duplicative effort and data, increase productivity, improve customer service, and simplify application and IT infrastructure support. By properly utilizing email, Internet and GIS services, the system also enhances agency's ability to collaborate, communicate and deliver services in a cost effective and timely manner.

Through targeted and judicious use of technology, applications, and databases, the Agency is able to achieve the best utilization of its limited resources. The agency will continue to evaluate information technology components and supporting staff to meet its stated goals and visions.

## 3.C. Security

**Security Policies**

Please answer the following questions regarding your agency's efforts to maintain a secure information technology environment. [The questions refer to the Nebraska Information Technology Commission's Security Policies. These policies are available at http://www.nitc.state.ne.us/standards/]

|  | YES | NO | IN PROGRESS |
|---|---|---|---|
| Has your agency implemented the NITC's Security Policies? |  |  | X |
| If your answers to the previous question is NO, has your agency implemented other security policies? | X |  |  |

**Agency Contact Information**

Please provide contact information for the person responsible for IT security:

| | |
|---|---|
| Name | **Steve Rathje** |
| Phone Number | **(402) 471-3965** |
| E-mail | **srathje@dnr.state.ne.us** |

**Narrative**

Provide a general description of the agency's efforts to develop and implement a security program:

(NOTE: Agency IT Plans are posted on a state Web server, accessible only from computers on the state network. Agencies have the option of providing security information here, or in the alternative, can submit the information directly to the state CIO and it will not be posted. Contact Steve Schafer at slschafe@notes.state.ne.us or 402-471-4385 to submit your security information in an alternative format.)

DNR has implemented and continuously maintains a series of computer and network security measures including a firewall, TCP/IP wrappers, user ID and password controls, and anti-virus software. In addition to routine reviews by Technical Support staff, results from the NITC security scans are used to further evaluate security and improve network security measures.

The NDNR IT Division has recently initiated a review of the NITC security policies and templates, and will collaborate with NDNR's Administrative Services Division on tailoring them to Agency needs and to determine implementation timing.

## 3.D. Disaster Recovery and Business Continuity Planning

**Definitions**.  For purposes of this document the term, "Disaster Recovery Plan" refers to preparations for restoring information technology systems following a major disruption.   The term, "Business Continuity Plan" refers to preparations for restoring the operational functions of the agency.  As used here, disaster recovery is a subset of business continuity, because information technology supports the business functions of the agency.

**Questions**

| | YES | NO | IN PROGRESS |
|---|---|---|---|
| Does your agency have a disaster/emergency recovery plan? | | | X |
| Does your agency perform regular back-ups of important agency data? | X | | |
| Does your agency maintain off-site storage of back-up data? | X | | |

**Narrative**

Provide a general description of the agency's efforts regarding disaster recovery and business continuity planning:

Current IT Division practices include a mix of routinely performed, automatic and manually initiated processes that create back-ups of all important applications, datasets, and changes to dynamic datasets since the last full back-up. Back-up processes are scheduled based upon key dataset characteristics (frequency and volume of dataset changes, and importance to business process continuity.) In addition, back-ups of specified directories on end-user PCs are automatically performed on all PCs that can be accessed via the network.

Back-up files are periodically taken off-site for rotation or for long-term, archival retention. A plan is in place to initiate daily rotation of application and dataset backups related to critical business processes involving frequent updates to an off-site location. The Agency's field offices have been instructed on backup requirements, and local staff are responsible for managing back-ups of any datasets maintained at those sites and used solely in local operations.

The IT Division is in the process of re-evaluating its entire back-up and recovery strategy and processes to re-align responsibilities, frequencies, and media, and to incorporate enhanced disaster recovery capabilities. Planned enhancements and considerations include more frequent rotation of critical application and dataset back-ups to an off-site location, and arranging for or developing limited off-site server capability. Division heads will be involved in completing disaster recovery plans.

## 3.E. Accessibility (Technology Access for Individuals with Disabilities)

| | YES | NO |
|---|---|---|
| Does your agency include the Nebraska Technology Access Clause in contracts for information technology purchases? [See Neb. Rev. Stat. § 73-205. The Technology Access Clause is available at http://www.nitc.state.ne.us/standards/] | X | |
| Does your agency have procedures in place to identify the information technology related requirements of users with disabilities? | | X |
| Does your agency provide training opportunities for management, procurement, and technical personnel on how to meet the accessibility needs of users with disabilities? | | X |

| | | |
|---|---|---|
| Has your agency evaluated its website(s) to ensure accessibility to all persons with disabilities?<br><br>If yes, what tools were used to evaluate accessibility?<br>___ http://www.w3.org/WAI/ER/existingtools.html<br>___ http://www.vischeck.com/<br>___ http://www.henterjoyce.com/fs_downloads/jaws_form.asp<br>___ Other (please specify _____ ) | | X |

Most of NDNR's information technology purchases are made through contracts arranged by State Purchasing. We assume such contracts include the prescribed language regarding accessibility. In the event that separate contracts for information technology purchases are required, the Nebraska Technology Access clause will be incorporated as part of such agreements.

The Agency's website includes alternative text page options on the main page and some pages in the Data Bank section. An assessment of website accessibility using the tools noted above has been started, and it is anticipated that an alternative text page option will be supported on main pages for each division. We will also add a message to the main web page advising anyone having difficulty using the NDNR website to contact the webmaster. Implementation of further enhancements will be subject to identified need and resource availability.

The Agency is not aware of any present accessibility issues within the Agency or among public users. If informed of a need, steps will be taken as soon as practicable to remedy any technology access limitations.

## 4. Future Uses of Information Technology

### 4.A. Strategies and Future Direction
This section should summarize the agency's strategies and future direction for information technology within the agency. Topics should include:
- A summary of future changes in uses of technology, which the agency plans to implement.
- A description of the agency's hardware replacement program or strategy.
- An overview of the agency's activities that promote collaboration.
- A discussion of factors and risks that will impact the success of the agency's information technology strategy.
- An overview of plans to implement e-government services.
- Your agency's efforts to retain IT staff, if applicable.

NDNR is committed to implementing and maintaining electronic government and innovative technologies, together with design methods, programs, applications and services, to better serve both our internal and external users. A summary of those strategies and future direction follows.

**Use of Information Technology**
- Increase data integration and expand applications and datasets to more effectively support both common and specific needs of business users.
- Integrate distributed water-related databases to enable business process improvements and facilitate increased data accessibility.
- Develop statewide system for creating, updating and managing surface water rights data.

- Prepare comprehensive reports, maps, and interpretations of data for effective and efficient management of natural resources in the state, including implementation of agency's programs and initiatives.
- Expand the use of Internet Map Server applications for interactive processing and display of spatial coverages over the internet.  Develop related GIS applications to assist in adding geographic details and attributes to base data used in numerous applications.
- Provide Nebraska geospatial layers to The National Map.
- Develop an enterprise-wide GIS metadata clearinghouse for the State.
- Perform data analysis and interpretations including hydraulic, hydrologic and statistical processing of data as needed for planning, policy and decision-making purposes in cooperation with other related programs both within and outside the Agency.
- Support digitization of field boundaries and attribution of field coverages for water source (surface water/ groundwater), water use, land use, ownership, irrigated acres, soil characteristics, geologic information, and other common parameters.
- Support integration and process improvements for water rights and dam work processes, applications, and databases to enable more efficient operations.
- Support integration of canal diversion, reservoir storage, & miscellaneous discharges data with streamflow records.

## Hardware Replacement Strategy
Until recently, the Agency's general strategy was to utilize hardware until it was essentially obsolete.  Newer technology was assigned to "power users" and critical functions.  Older, less capable technology was passed down to users or functions with lower capability or reliability demands.  IT Technical Support staff did their best to maintain and manage a network comprised of a variety of hardware configurations and multiple operating systems.  As a result, there is a backlog of older units which, from a practical perspective, must be worked out over the next 2–3 years to a more structured life cycle replacement approach.

The Agency's present direction is aimed at keeping hardware and related operating systems more current while continuing to be responsive to the varying needs of its staff and budget constraints.  To this end, the following informal lifecycle targets have been defined.  These will be monitored and adjusted based on resource availability and needs.
- Servers are targeted for a four-year life cycle.  New servers will be dedicated to Agency-critical functions with rotation of older servers to less critical functions. Additionally, functions are being consolidated to fewer servers as old servers are replaced with more powerful units.  This is expected to reduce support requirements, as well as system licenses and other costs.
- Centralized data storage (disk) devices will be acquired as separate units from the servers where feasible.  These devices will be networked to multiple servers to increase flexibility and business application reliability.
- Personal Computer (PC) requirements are being categorized, and life cycle targets will correspond with expected capability requirement increases.  Initially, the targeted life cycles are four years for PCs assigned to users with heavy processing and/or data manipulation requirements, and five years for PCs assigned to users with less demanding work requirements.
- Printers and other peripheral devices are replaced on an as-needed basis.  New higher capability peripherals are placed in shared work group settings, and older units are rotated to individual or limited-use roles.

## Collaborative Activities
- Through collaborative efforts, the Agency determines the most effective and cost-efficient sources of data, and develops GIS applications and procedures that take advantage of integration to serve the needs for data sharing and the use of statewide priority databases.
- Efforts are on-going within the Agency to reduce duplication in data collection and management processes.  Externally, partnerships among stakeholders are promoted to enable linking to external data sources, and reducing restrictions on data access.

- Coordination with stakeholders both within the public sector and the academic community is a continuing effort to develop standards and protocols for data collection and interpretation, and to disseminate processed information to user community.
- Liaison and coordination with Nebraska Information Technology Commission (NITC), State Government Council, Nebraska Intergovernmental Data Communications Advisory Council (NIDCAC), Chief Information Officer, GIS Steering Committee, The National Map, and other state, federal and local data collecting agencies helps promote data sharing which minimizes development effort and data duplication.

## E-Government Initiatives
- Streamline IT operations using current technology to provide higher level of service to its customers, and to promote data sharing and dissemination activities.
- Continue to provide and promote e-government services.  Further automate and integrate business processes, data, and business forms to reduce paperwork and re-entry efforts.
- Identify IT opportunities and needs, and develop strategies to serve these requirements.  Apply diverse expertise to provide better IT solutions and increase returns on IT investments.
- Continue enhancing the Geographic Information System to meet Agency and public needs by retaining motivated and well-trained GIS staff.
- Provide geospatial data and mapping services in support of the Nebraska Geospatial Data Center initiatives.  Provide metadata publication and access services for Nebraska geospatial data as part of the enterprise-wide Metadata Clearinghouse.
- Enhance data dissemination procedures that provide direct access, data sharing, and retrieval of information over the internet to further promote E-government services.
- Work with NOL to enhance the Well Registration Application Form to further simplify the electronic application process and interaction with well owners, well drillers, irrigators, NRDs and other stakeholders.
- Verify and update well registration data records, and integrate with groundwater wells used in monitoring water levels and GW quality observations. Work with other stakeholders to properly identify and tag groundwater (registered, monitoring and observation) wells using GPS technology.
- Scan and/or digitize documents related to groundwater and surface water rights, and publish for internal online and web access as appropriate.

## Exposures and Risks
- Technology staff shortages relative to Agency demands for and expectations of IT services.  To minimize this risk, some procedures will be automated or further enhanced to minimize the need for/frequency of operator interventions, user errors requiring correction by developers, and other work of a routine or clerical nature.
- Develop standards, guidelines and metadata that provide for creation of a credible geospatial data source.

## IT Staff Retention
- Provide opportunities for and encourage professional development and appropriate promotions.
- Promote state-supported higher education and external training workshops for IT staff. Assist in job-related certifications as appropriate.
- Support flex hours, flex days, business casual dress, and appropriate telecommuting.
- Continued awareness of retention expectations.
- Celebrate successes.

## 4.B. Information Technology Training

Summarize the agency's efforts to address training needs relating to information technology.  This should include:

- Training for users of information technology
- Training for IT staff who develop and support the information technology systems
- List areas/topics for which a training need has been identified by the agency.

The IT Division utilizes a combination of training methods that best suits the IT users. These range from informal train-the-trainer approaches to individual or small group walk-through sessions. The proximity of IT staff to most Agency users facilitates quick response to questions that may arise in their use of tools and applications.

Training for IT staff is supported through UNL course curriculum, DAS training sessions, CBT courses, and other technical and leadership workshops offered by federal agencies, software vendors, and commercial training providers. Application development and infrastructure upgrade training has addressed the following IT staff needs:  Windows Server 2003 migration and administration; ASP.net web application development using Visual Studio.net; programming with Visual Basic.net; and installation and use of a variety of Microsoft products.  GIS training has included internal knowledge-sharing workshops and web-based demonstrations offered by ESRI on ArcView, ArcIMS, ArcGrid, and Arc/Info.

Training plans include formal training for leadership and team building, firewall software administration, ARCserve Backup management, advanced MS Access development, SQL database management, ArcGIS, and Geodatabase design and development. The Agency is also considering joining IMServices' CBT Training program which would serve a variety user, IT, and management training needs.

## 4.C. Future IT Projects

List significant information technology projects which are expected to be undertaken by the agency during the next two years.

| PROJECT | STATUS (start date, etc.) |
|---|---|
| Nebraska Map (as part of The National Map) | Started – January 2004 |
| Integrated Water Information System Development | Started – May 2004 |
| Enterprise-wide GIS Metadata Clearinghouse | Started - June 2004 |
| | |
| Water Rights Document Scanning & Web Access Support | Ongoing |
| Agency Datasets Reorganization & Servers Consolidation | Ongoing-Resource Dependent |
| Application & Data Backup Process Enhancement | Ongoing-Resource Dependent |
| Data Bank Information Use / Need Analysis | Revisit Early to Mid 2005 |
| | |
| IT Disaster Recovery Capability Development | Start Mid to Late 2004 |
| Floodplain Data Consolidation & Web Access Development | Start Late 2004 |
| Streamflow Information Management Software Replacement | Start Late 2004 |
| | |
| Geospatial dataset processing & web access development (make available on the NDNR web site, The National Map, and as downloadable public domain data) <ul><li>2003 FSA NAIP Imagery</li><li>1999 DOQQs</li><li>Platte River Infrared Aerial Imagery</li><li>10' TVC (elevations)</li><li>Street Centerline/Address Database</li></ul> | Start Late 2004 / Early 2005 (part of NSDI CAP grant application submitted June 2004) |
| Secure External Access Implementation (VPN?) to expand & better support data access/input by field offices & other trusted entities. | Start Planning Late 2004 |
| | |
| Enterprise GIS / Geospatial Data Center Initiatives Support - TBD | Early 2005 |
| Agency Email Transition to State Unified Email System | Start Mid to Late 2005 |

## 4.D. Projects Relating to the NITC's Strategic Initiatives

In creating the Nebraska Information Technology Commission (NITC), the Legislature recognized the need for "developing a statewide vision and strategic plan to guide investments in information technology". Each year, the NITC develops the Statewide Technology Plan that adopts goals and objectives to guide the work of the Commission. The NITC also reviews and prioritizes major information technology projects as part of the biennial budget process. This year, the NITC is proposing several changes to the planning process, in order to give policy makers more information about statewide technology goals. These changes include identifying a list of statewide strategic initiatives, giving agencies an opportunity to address those initiatives in their agency comprehensive information technology plans and biennial budget requests, organizing planning sessions to develop implementation strategies, and preparing a gap analysis for the Governor and Legislature in November.

On March 9, 2004, the NITC adopted a list of eight statewide strategic initiatives. These include (in no order of priority):
1. Statewide Telehealth Network
2. Community IT planning and technology-related economic development

3. Network Nebraska (statewide broadband communications and related services)
4. Statewide Synchronous Video Network
5. E-Learning
6. Enterprise Architecture (for state government agencies)
7. E-Government
8. Security and Business Resumption

A general description of each initiative is available at:
http://www.nitc.state.ne.us/forms/.

In this section of the Agency Comprehensive Information Technology Plan, agencies have the option to describe current or proposed activities that would promote one or more of these initiatives. Agencies should also notify Steve Schafer by May 1, 2004, of their interest in these initiatives, in order to be included in any planning sessions this summer.

Although each of these initiatives is important, the NITC does not assume that projects promoting these initiatives are a higher priority than activities supporting agency-specific missions and operations.

**NDNR Activities to Promote NITC Initiatives**

GIS Metadata Clearinghouse
In collaboration with the Nebraska Geographic Information System (GIS) Steering Committee, NDNR agreed to take the lead for developing and operating the Nebraska GIS Metadata Clearinghouse. This project will establish an online, enterprise clearinghouse for available geospatial (location-referenced) data related to the geographic area of Nebraska. The clearinghouse will allow Nebraska citizens, public agencies, and private entities to conduct online searches for a wide variety of geospatial data developed and/or maintained by a variety of state, local, and federal agencies and private entities. This project entails merging two existing online geospatial clearinghouses and developing web-based programs to facilitate the entry, validation and submission of metadata to be published in the metadata clearinghouse function of the Nebraska Geospatial Data Center.

This interagency project is based on recommendations of the GIS Steering Committee. The project will also work with and support a parallel effort through the Conservation and Survey Division – UNL to inventory available geospatial data currently held by Nebraska institutions of higher education and key state agencies and assist those entities to document their existing geospatial data with standardized metadata so that it can be listed in the clearinghouse catalog and shared with others.

E-Government
The Agency will continue to provide and promote e-government services. Activities will include further automating and integrating business processes, data, and business forms to reduce the need for stakeholders to fill out numerous paper applications and/or maintain duplicate data. Resource data available via NDNR's website will be expanded and data dissemination tools will be enhanced to better support public access, data sharing, and retrieval of information over the Internet.

Transition to the Unified E-mail System for Nebraska State Government
Detailed plans have not yet been developed, but the Agency anticipates transitioning from its current internally-supported e-mail system to the State standard adopted by the NITC.